



Integrated Formation Evaluation in Clastic & Carbonate Reservoirs



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Introduction:

This integrated formation evaluation in clastic and carbonate reservoirs training course provides learners with extensive knowledge of the application of oil and gas well log analysis and integrated formation evaluation procedures. It covers the physical underpinnings of the logging tools and the entire advanced interpretation procedure for reservoir characterization.

Carbon reservoirs play a pivotal role in our understanding of petrophysical properties and the process of carbon sequestration. Understanding the carbon reservoirs and their definitions aids in better evaluating and characterizing these complex geological formations. Participants will explore the nature of carbon reservoirs, both clastic and carbonate, and integrate these concepts with the broader curriculum of formation evaluation.

This integrated formation evaluation in clastic and carbonate reservoirs course focuses on integrating and evaluating formation data, particularly in clastic and carbonate reservoirs. It is designed to impart comprehensive insights into the methods and meanings of integral formation, facilitating participants' evaluation of integral aspects of reservoir characterization.

Targeted Competencies:

Participants Competencies in this integrated formation evaluation in clastic and carbonate reservoirs training will:

- Recognize the significance of enhanced reservoir characterization in-field evaluation.
- Learn about the sophisticated formation evaluation methods and processes.
- Perform quality control and assurance before integrating the log analysis results into the static and dynamic modeling.
- Use the NMR data to characterize the reservoir fluid and integrate the oil and gas well test findings.
- Full petrophysical assessment for new blocks and border regions exploration petrophysics.

Targeted Groups:

- Petrophysicists/Log analysts.
- Geologists.
- Reservoir engineers.
- Geophysicists.
- Geomodellers.

Course Objectives:

At the end of this integrated formation evaluation in clastic and carbonate reservoirs course, participants will be able to:

- Theoretical frameworks and petrophysical uses of tools.
- Thoroughly interpreting petrophysical data for clastic reservoirs.
- Incorporating the core analysis into procedures for traditional or advanced logs.
- Producing reservoir Modeling of electrifiers and permeability.
- Characterization of reservoir fluid and pore volume.

Course Content:

Unit 1: Formation Evaluation and Introduction to Logging Tools:

- Lithology equipment.
- Tools for measuring porosity.
- Tools for resistivity.
- Invasion history.
- Clastic and carbonate reservoir differences.

Unit 2: Petrophysical Evaluation and Geosteering in Reservoir Development:

- Log normalization, depth matching, splicing, and QC/QA for logs.
- Detecting lithology, porosity, and mineralogy using cross plots.
- Calculating the amount of shale.
- Evaluation of porosity in clean and shaly formations.
- Calculate the resistivity of water.
- Calculating saturation in reservoirs with clean and shale water.
- Calculating the saturation exponent and cementation factor from core analysis.
- Carrying out petrophysical studies on classics and carbonates.
- Petrophysical examination of horizontal and significantly deviated wells.

Unit 3: Core analysis:

- Underlying data analysis.
- Statistics for the core data identifying reservoir heterogeneity.
- Flow Zone Indicator and Rock Quality Index.
- Various facies models.
- Modeling of reservoir permeability and electrification.
- Examples and a practical exercise for advanced reservoir appraisal utilizing accurate core data.
- Integrating wireline and LWD logs with core data.
- Development and exploration of petrophysics.

Unit 4: Nuclear Magnetic Resonance:

- NMR tool theory.
- Recognizing the NMR log.
- Uses of advanced NMR.
- Workflow for NMR interpretation.
- NMR testing with integration.
- Core integration of NMR.
- Integration of traditional logs and NMR interpretation.
- Facies identification from NMR logs.

Unit 5: Modeling of Saturation Height:

- Concept of capillary pressure.
- Facets of the capillary pressure curve variations.
- Analysis of reservoir pressure.
- Understand the free water level and the oil-water contact.
- Modeling of saturation height.
- Modeling simulations of saturation height in clastic and carbonate reservoirs.